ATF2 IP Tuning task Updates

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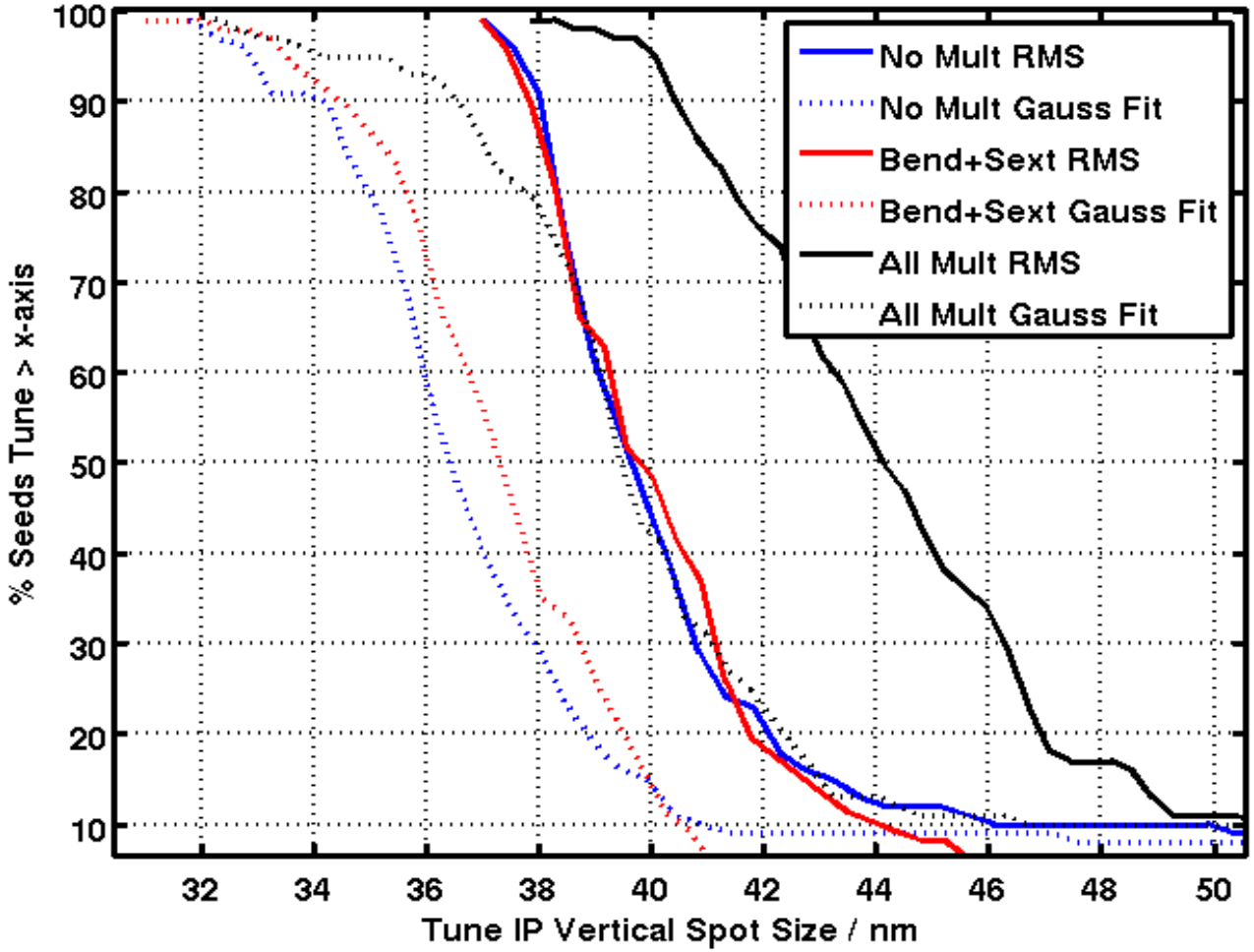
IP Tuning Task Group Meeting

Oct 23 2008

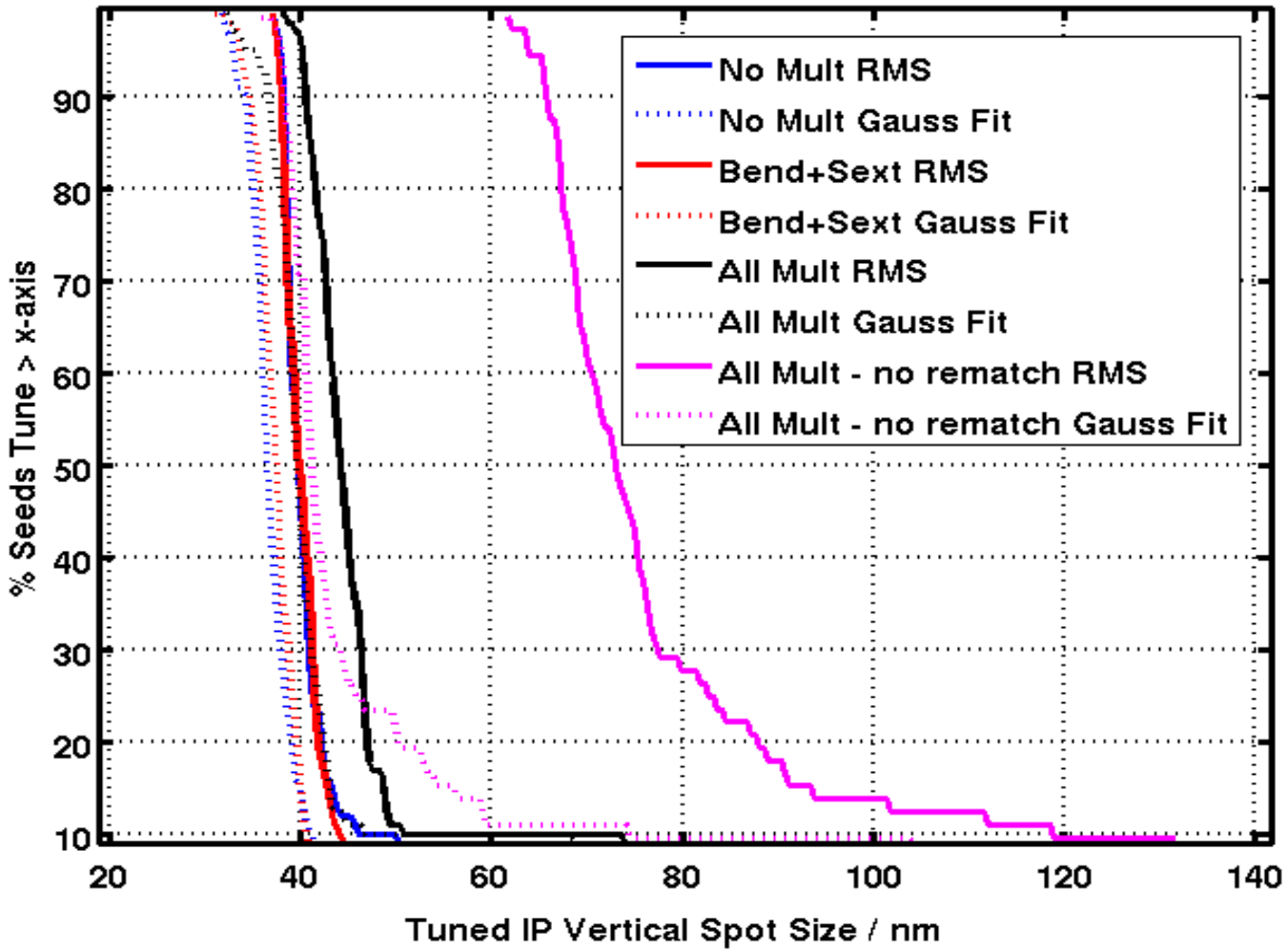
Updates since last time

- Magnet movers (without trimming function)
  - Janice has data on moves vs. time (spreadsheet on wiki)
  - About 42um/s observed time to make x/y moves
  - Not yet in tuning simulations
  - Work underway to investigate faster mover drivers to use for sextupole magnet movers (OMS VME58 driver cards salvaged from nanobpm).
- Multipole stuff
  - Inserted measured FFS dipole data (Poisson predictions used previously)
  - Inserted data for SF1 + SD0 missing last time
  - Rogelio re-matched these optics to reduce IP size with doublet in
  - Tuning results with these shown.
- Changed optics to reflect increased s-bpm -> magnet distances
  - Show some results from this.

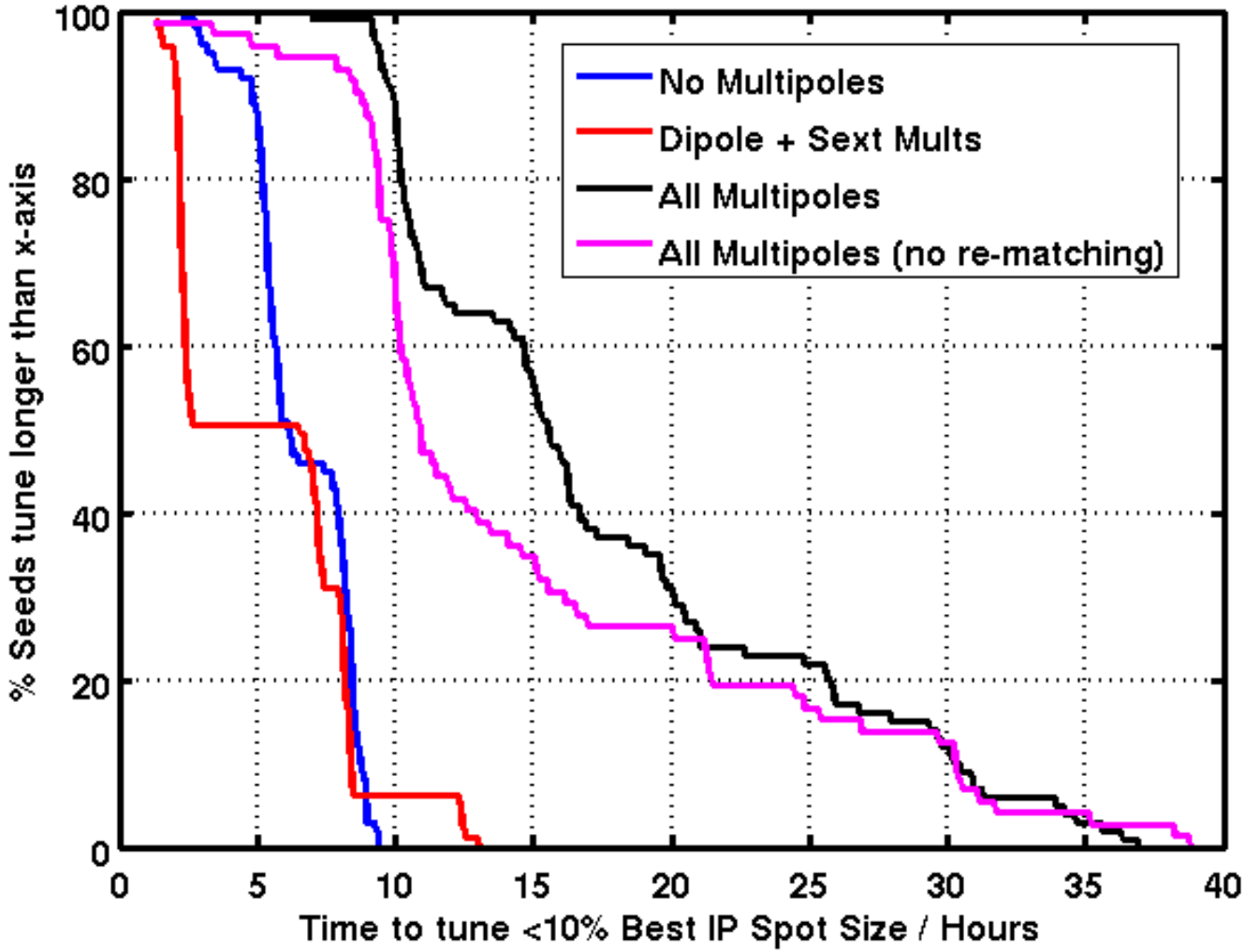
Tuning With Measured Multipole Components



Results Without Re-Matched Optics



Tuning Time


No Multipoles
Dipole + Sext Mults
All Multipoles
All Multipoles (no re-matching)
% Seeds tune longer than x-axis
Time to tune <10% Best IP Spot Size / Hours
0
20
40
60
80
100
0
5
10
15
20
25
30
35
40

Effect of Increased s-band Bpm -> Magnet Distances

- From Andrea Jeremie's talk Sept 24th:
  - FD Sext-BPM electrical readout centre + 65.5mm
  - FD Quad-BPM electrical readout centre + 50.5mm
- Put into these simulations- no effect as don't actually use sextupole bpm readout here
  - Use BBA to put sextupoles on-beam, then just apply knobs
- Effect of increased distance means BPM reading v. different from beam pos at Sext centre- so setting BPM offset when doing BBA not so good
  - If want to use sext BPM to put sext back on-beam at any time, prob not pos- have to re-do BBA (or constantly apply tuning knobs).
  - Should investigate more in dynamical simulations.